

Notice of Allowability

Application No.

10/511,595

Applicant(s)

GRASS ET AL.

Examiner

Ling-Siu Choi

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/09/2007.
2. ☒ The allowed claim(s) is/are 1,3-6 and 8-22.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

1. This Office Action is in response to the Remarks/Arguments filed 10/09/2007. Claims 2 and 7 were canceled and claims 1, 3-6, and 8-22 are now pending, wherein claims 1, 3-5, and 13-17 are drawn to a catalyst and claims 6, 8-12, and 18-22 are drawn to a process.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CAR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms Marina I. Miller on October 22, 2007.

3. The application has been amended as follows:

Claim 1, line 2, changed "compounds to give the corresponding alicyclic compounds," to --compounds, --;

Claim 1, line 6, delete "wherein";

Claim 1, line 7, change "from 0.1 to 50 nm." To --0.1 to 50 nm, and wherein the catalyst can hydrogenise the aromatic compounds to the corresponding alicyclic

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compounds.--

Allowable Subject Matter

4. Claims 1, 3-6, and 8-22 are allowed.

5. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Brunner et al. (US 6,284,917 B1), Hayes et al. (US 4,079,092), and Hahnfeld et al. (US 6,350,820 B1).

Summary of claim 1:

A catalyst for the hydrogenation of aromatic compounds alicyclic, comprising	
	at least one <u>metal of the eighth transition group</u> on or in a support material
	wherein the <u>support material</u> has
	an average pore diameter = 25-50 nm
	a specific surface area > 30 m ² /g and
	<u>over 90% of the total pore volume of the support material is comprised of meso-and micropores with a diameter of from 0.1 to 50 nm, and</u>
	wherein the catalyst can hydrogenise the aromatic compounds to the corresponding alicyclic compounds.--

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Summary of claim 6:

A process for the catalytic hydrogenation of an aromatic compound with one or more hydrogen-containing gases on a catalyst	
the catalyst:	at least one metal of the <u>eighth transition group</u> on or in a <u>support material</u>
	wherein the support material has an average pore diameter = 25-50 nm a specific surface area > 30 m ² /g and
	wherein <u>over 90% of the total pore volume of the support material is comprised of meso-and micropores with a diameter of from 0.1 to 50 nm</u>
the aromatic compound:	comprises aromatic monocarboxylic acids or their alkyl esters or aromatic polycarboxylic acids or their anhydrides, half esters, or full esters, and
	are reacted to give the corresponding alicyclic poly-and/or monocarboxylic acid compounds

Brunner et al. disclose a catalyst and a process to hydrogenate a benzenepolycarboxylic acid, comprising contacting the benzenepolycarboxylic acid with a hydrogen-containing gas in the presence of a catalyst, wherein **the catalyst** comprises at least one metal of transition group VIII (ruthenium, palladium and/or rhodium) and optionally at least one metal of transition group I or VII of the Periodic Table as active component(s) and a support which is calcined at from 200 to 600°C and has "a pore distribution in which from about 5 to about 50%.....of the pore volume is formed by macropores having pore diameters in the range from about 50 nm to about 10,000 nm and from about 50 to about 95%....of the pore volume is formed by mesopores having a pore diameter of from about 2 to about 50 nm where in each case

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the sum of the pore volumes adds up to 100%" (catalyst 2 - col. 5, lines 5-16 and 29-38; col. 6, lines 1-23). However, Brunner et al. do not teach or fairly suggest the claimed catalysis, wherein the catalysis has over 90% of the total pore volume of the support material being comprised of meso-and micropores with a diameter of from 0.1 to 50 nm and the catalyst can hydrogenise the aromatic compounds to the corresponding alicyclic compounds.

Hayes et al. disclose a catalyst and a process to produce a cycloparaffinic hydrocarbon, comprising contacting hydrogen and an aromatic hydrocarbon in a catalytic composite comprising a porous carrier material containing about 0.01 to about 2 wt.% platinum or palladium, about 0.01 to about 2 wt.% rhodium, about 0.05 to about 5 wt.% cobalt, and about 0.1 to about 3.5 wt.% halogen uniformly dispersed throughout the porous carrier material (claim 1). Hayes et al. further disclose that the porous carrier material is a crystalline aluminosilicate and has a surface area of about 25 (100) to about 500 m²/g and a pore diameter of about 20 to about 300 Å (col. 4, lines 36-39; col. 5, lines 5-11; claim 3). However, Hayes et al. do not teach or fairly suggest the claimed catalysis, wherein the catalysis has over 90% of the total pore volume of the support material being comprised of meso-and micropores with a diameter of from 0.1 to 50 nm and the catalyst can hydrogenise the aromatic compounds to the corresponding alicyclic compounds.

Hahnfeld et al. disclose a catalyst and a process to hydrogenate the vinyl aromatic polymer block segments of the copolymer in the presence of a metal catalyst supported on an inorganic substrate, wherein the inorganic substrate is a silica,

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alumina or carbon and has at least 98 percent of the pore volume defined by pores having pore diameters greater than 300 angstroms and a surface area between 10 and 100 m² /g, preferably between 15 and 90 with most preferably between 50 and 85 m² /g and wherein the metal catalyst comprises metal capable of catalyzing hydrogenation of the polymer, which is nickel, cobalt, rhodium, ruthenium, palladium, platinum, other Group VIII metals or mixtures thereof (col. 5, lines 22-38; col. 6, lines 1-16). However, Hahnfeld et al. do not teach or fairly suggest the claimed catalysis, wherein the catalysis has over 90% of the total pore volume of the support material being comprised of meso- and micropores with a diameter of from 0.1 to 50 nm and the catalyst can hydrogenise the aromatic compounds to the corresponding alicyclic compounds.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

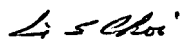
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

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If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



LING-SUI CHOI
PRIMARY EXAMINER

October 28, 2007